

Notice of Allowability	Application No.	Applicant(s)	
	09/935,510	GOLDSTEIN, JULIUS L.	
	Examiner	Art Unit	
	Brian T. Pendleton	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment on 1/28/05.
2. ☒ The allowed claim(s) is/are 4-19, 22-30, 34, 36-54, 59, 66 and 75-98.
3. ☒ The drawings filed on 10 December 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Benjamin Volk, Jr. on April 19, 2005.

The application has been amended as follows:

In claim 11, line 1, "claim 2" has been changed to --claim 4--

In claim 12, line 1, "claim 2" has been changed to --claim 4--

In claim 13, line 1, "claim 2" has been changed to --claim 4--.

Claim 59 line 6, "amplifier" has been changed to --amplification--

Claims 4-19, 22-30, 34, 36-54, 59, 66 and 75-98 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art references of record do not teach nor suggest the feature of instantaneous compressive gain for an input sound signal provided by a memoryless nonlinear amplifier. Cummins discloses a nonlinear amplifier in a hearing aid having a linear gain between points k1 and k2 and compressive gain about point k2. The compression threshold at point k2 is adaptive. White discloses a hearing aid having multiple band pass filters for processing the input signal in separate frequency bands. It was proposed to combine Cummins and White to provide a nonlinear amplifier with band pass filters and separately adjust gain in distinct frequency bands

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for the purpose of reducing spectral distortion caused by one channel hearing aid processors.

However, the combination does not address the feature of a memoryless amplifier accomplishing instantaneous compressive gain. As pointed out by the Applicant and supported in the submitted affidavits, in the art of signal processing, the output of a memoryless system does not rely on the previous inputs. At any time, the output value can be calculated based on the input value.

Cummins and White teach away from that claimed feature. Cummins discloses a block diagram of the nonlinear amplifier in figure 4 which comprises an envelope magnitude detector 75 which detects the envelope of the input signal and gain calculator 76 which computes the gain to be applied based on the envelope. The detector 75 detects the energy magnitude envelope by performing RMS calculation over a short sample period or taking an absolute value of the signal followed by low pass filtering (see column 7 lines 43-66). These methods involve calculating the output signal based on previous inputs (a collection of signal samples), not a sample by sample calculation. Similarly, White discloses the use of a integration filter 53 and envelope detector 54 for determining the gain to be applied to an input signal. The use of elements 53 and 54 do not constitute a memoryless system with instantaneous compressive gain. As a result, claims 4, 5, 17 and their dependent claims are allowed. Likewise, claim 22 recites the limitation of instantaneously compressively amplifying an input signal (in addition to setting a compression threshold at a predetermined quiescent level and adaptively controlling the threshold based on the peak value of the input sound signal as compared to a stored peak value). The claim and its dependents are allowed. Claims 36, 37, 40, 42, 44, and 52 make reference to a memoryless transducer which provides instantaneous compressive gain for a transducer input signal. The memoryless transducer, which accomplishes nonlinear gain amplification, is neither taught nor

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suggested by the prior art of record. Claim 75 similarly states a memoryless nonlinear compressive audio amplifier which is configured to produce a memoryless gain compression directly on a sound signal that is received from a first bandpass filter. The prior art references of record do not teach nor suggest the use of memoryless nonlinear compression. Therefore, claim 75 and its dependents are allowed. Claim 59 is directed to a method of diagnosing the extent of hearing impairment comprising adjusting the compression threshold for low level gain and compression power in a plurality of channels for a hearing amplification device and presenting a sound signal at the input of the hearing amplification device until a patient achieves satisfactory results. That method is not disclosed in the prior art of record. It and its dependent, claim 66 is allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (571) 272-7527. The examiner can normally be reached on M-F 7-4:30.

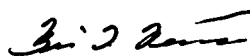
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian T. Pendleton
Examiner
Art Unit 2644

bt



BRIAN PENDLETON
PATENT EXAMINER